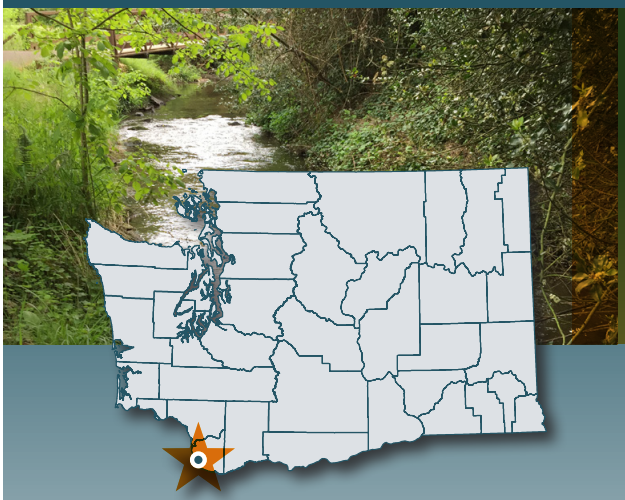
Burnt Bridge Creek

APRIL 2023

Summary of 2021 Surface Water Monitoring Program Results



Burnt Bridge Creek flows through 10 miles of Vancouver, Washington's residential and agricultural areas. New Zealand mud snails, an invasive aquatic species, were observed by staff upstream from the site. Stream habitat has improved because of efforts by non-profits, volunteers, and government agencies. Their work included riparian vegetation plantings and stormwater drainage control.

In 2021, Washington State Department of Agriculture (WSDA) monitored 18 sites in Washington. Burnt Bridge was the only monitoring site located in Clark County.

Samples were analyzed at the Manchester Environmental Lab, Port Orchard, Washington.

WSDA compares detected pesticide concentrations to WSDA assessment criteria, which are half of state and federal water quality criteria. Each pesticide has its own assessment criteria, based on its toxicity to aquatic animals, insects, and plants.

Site information:

Years sampled: 2017 – present

Fish habitat: Coho salmon and winter steelhead trout (SalmonScape: apps.wdfw.wa.gov/salmonscape)

Sampling dates:
13 weeks, April 7 – August 25, September 20 and October 4

Water testing:
Samples were tested for 170 current and legacy chemicals (59 insecticides, 58 herbicides, 23 fungicides, 19 pesticide degradates, 6 legacy chemicals, 2 synergists, 1 antimicrobial, 1 insect repellent, and 1 wood preservative)

Products listed are for descriptive purposes only and do not imply endorsement by the author or the Department of Agriculture.

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Results:

- There were 48 unique chemicals detected with a total of 207 detections in Burnt Bridge Creek.
  - Of these, 17 detections were above WSDA assessment criteria. Roughly 71% (12 detections) of exceeding detections were from DDT and its degradates.
- When multiple pesticides are detected simultaneously, the harmful effects can combine; multiple pesticides were detected every week Burnt Bridge Creek was sampled. Between 6 and 30 pesticides were detected at each sampling visit.
- WSDA identifies some pesticides as Pesticides of Concern (POC) when they have been detected above WSDA's assessment criteria and above established detection frequencies.

Watershed-specific POCs in Burnt Bridge Creek:

ICONS FOR ENVIRONMENTAL HAZARDS LISTED ON PESTICIDE LABELS

potential for spray drift | potential for runoff | potential to leach into groundwater | highly toxic to bees | toxic to aquatic invertebrates | toxic to fish | toxic to birds | toxic to mammals

Diuron - Herbicide

- *Common trade names:* Direx, Karmex
- *Example uses within watershed:* pasture, right-of-way, asphalt/cement
- This chemical can transport into the environment via drift or runoff and can contaminate groundwater. Diuron has been found in groundwater in Washington State.
- Also detected in nine other monitored watersheds and a POC in six of them.

Fipronil - Insecticide

- *Common trade name:* Termidor
- *Example uses within watershed:* ornamental tree, asphalt/cement, residential
- Three breakdown products of fipronil can be just as toxic to certain organisms in the environment as fipronil. In 2021, all three of these were detected at this site below WSDA assessment criteria.
- Also detected in six other monitored watersheds and a POC in three of them.

Imidacloprid - Insecticide

- *Common trade names:* Admire Pro, Gaucho, Merit
- *Example uses within watershed:* nursery/ornamental, residential
- Also detected in 13 other monitored watersheds and a POC in 10 of them.

Permethrin - Insecticide

- *Common trade names:* Fastac CS, Permanone
- *Example uses within watershed:* mosquito control, nursery/ornamental, residential
- Was also a POC in one other monitored watershed.

AGR PUB 102-737 (R/10/23)

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The calendar at right shows the concentration in µg/L and date sampled of each watershed POC detected. This calendar does not include all the pesticides WSDA found during the growing season. The "–" identifies data that could not be collected or analyzed. Detected concentrations that exceed WSDA's assessment criteria have a higher potential to cause harm to aquatic ecosystems.

[* H: Herbicide; I: Insecticide]

exceeds assessment criteria

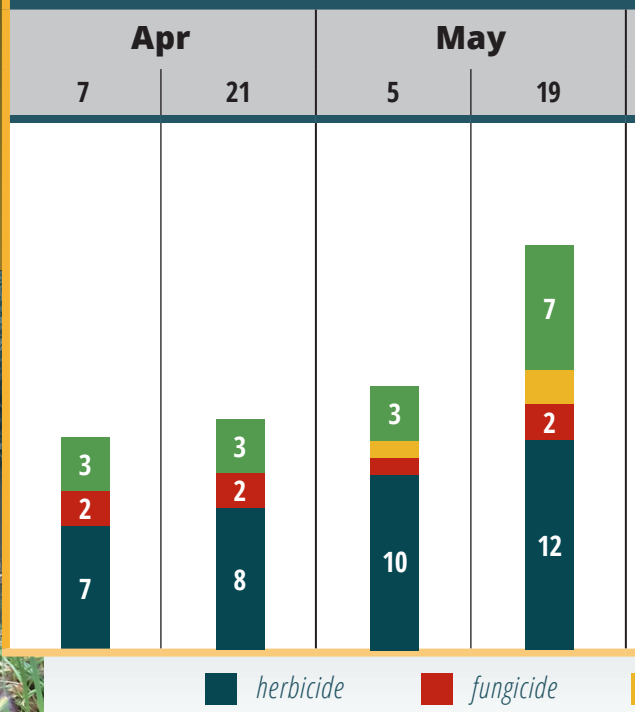
below assessment criteria

Watershed Pesticides of Concern Detected and their Corresponding Sam

Month ▶		Apr		May	
Day of the Month ▶	Use*	7	21	5	1
Diuron	H			0.004	0.0
Fipronil	I				
Imidacloprid	I				
Suspended sediment concentration *(mg/L)*		-	9	8	8
Streamflow *(cubic ft/sec)*		9.8	7.4	6.7	7.
Precipitation *(total in/week)*		-	-	0.18	0.1

The graph at right shows the total number of detections per sampling visit in each pesticide category. The category 'other' includes legacy, degradates, and additional pesticide-related chemicals. Note that the number of detections between categories cannot be directly compared due to the different number of chemicals in each category and variability in analysis methods used. The increase in detections in the late fall may be due to contaminant transport from surface water runoff or soil erosion caused by precipitation events.

Total Number of Detections per Sampling E



Recommendations:

Make use of natural protections

- Use buffers, filter strips, sediment basins, ground cover, and setbacks.
- Maintain vegetation along creeks and take care during spring time applications before vegetation along streams leafs out.

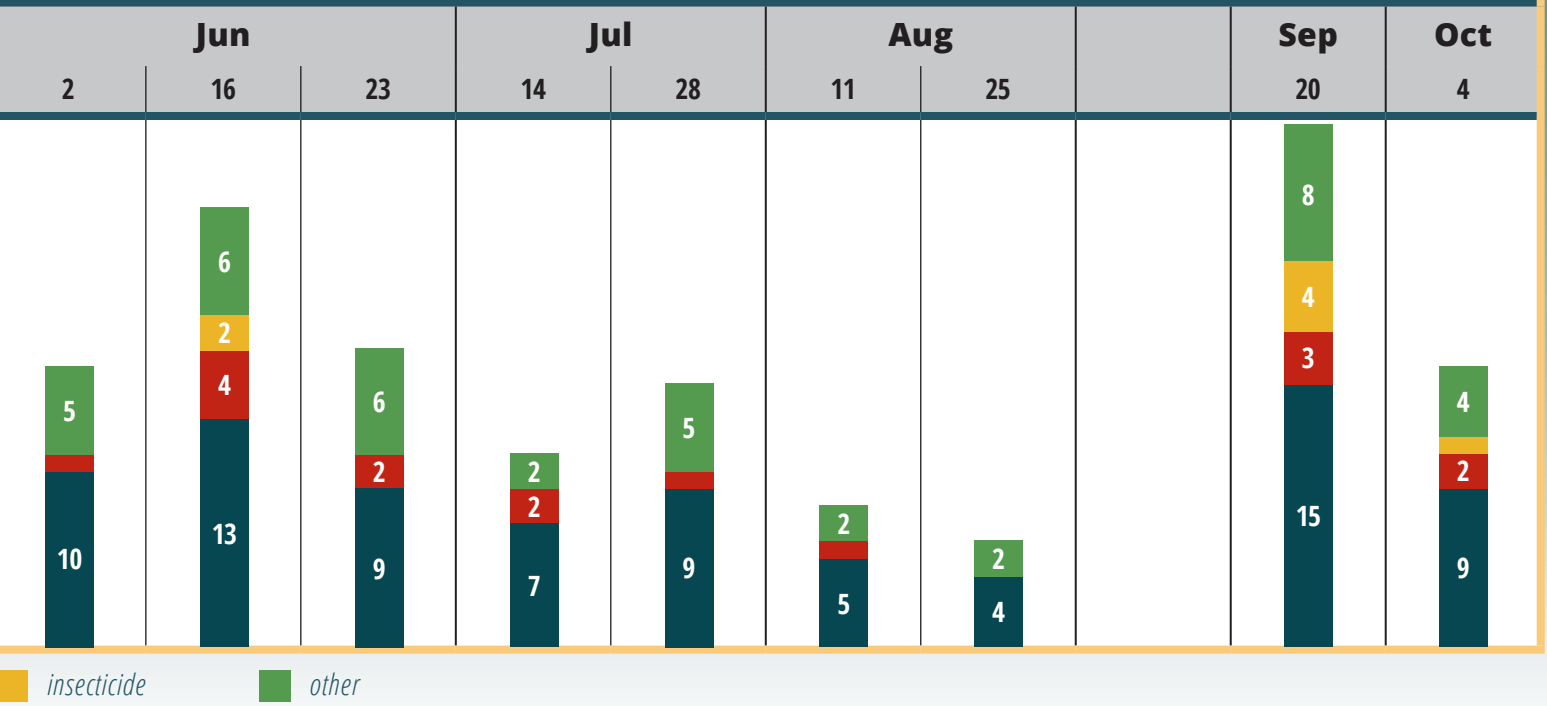
Be informed

- Read and follow pesticide label directions.
- Check the weather forecast to reduce the chances of drift or runoff.
- Review WSDA's Pesticides of Concern and choose less-toxic pesticides when possible.

pling Dates and Concentrations

	Jun			Jul		Aug			Sep	Oct
9	2	16	23	14	28	11	25		20	4
007	0.025	0.078	0.008	0.008					0.071	0.006
		0.009							0.009	0.004
		0.010								
3	6	12	6	4	5	5	4		8	2
.1	5.1	7.9	3.9	3.6	2.8	3.2	3.5		15.0	4.7
15	0.24	1.35	0	0	0	0.01	0.01		1.76	0.60

Event by Pesticide Category



Please see agr.wa.gov/AgScience for more information.

Care for your equipment and products

- Calibrate, maintain, and inspect application equipment.
- Properly dispose of all unneeded pesticides. Visit agr.wa.gov/wastepesticide to learn about waste pesticide collection events.

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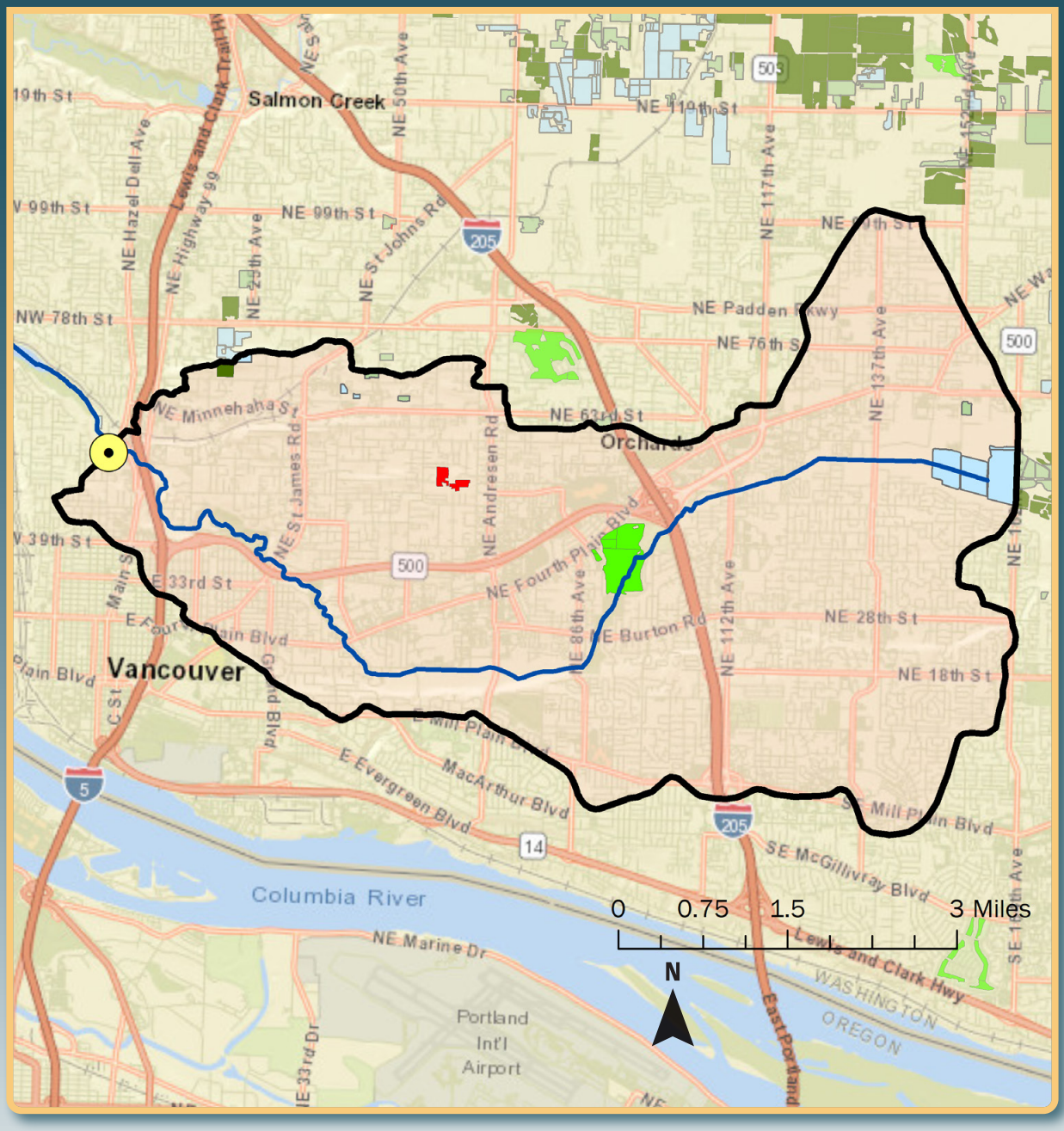

Burnt Bridge Creek crop groupings | acres	
Other	173
Hay / Silage	13
Orchard	17
Pasture	13
Turfgrass	128

Sampling Location
Burnt Bridge Creek
Burnt Bridge Watershed

Total Agriculture	344	acres
Total Non-Agriculture	16,493	acres
Watershed Total	**16,837**	acress

To view mapped crop groups at the field scale, download the WSDA Agricultural Land Use data or view the interactive web map here: https://agr.wa.gov/departments/land-and-water/natural-resources/agricultural-land-use